A new herbaceous species of *Pluchea* (Asteraceae: Plucheinae) from central Australia

D.E. Albrecht [1] and A.R. Bean [2]

[1] c/o Northern Territory Herbarium, Department of Land Resource Management, PO Box 1120, Alice Springs 0871, Northern Territory, Australia; e-mail: davealbrecht4@gmail.com

[2] Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane Botanic Gardens, Mt Coot-tha Road, Toowong 4066, Queensland, Australia; e-mail: tony.bean@qld.gov.au (corresponding author)

Introduction

Hunger (1996, 1997) published on the taxonomy of the genus *Pluchea* Cass. in Australia. She described a new species, *Pluchea dunlopii* Hunger, and reinstated *P. ferdinandi-muelleri* Domin, and, in the latter paper, a revision for the continent, enumerated seven species.

A renewed examination of the genus in Australia has been prompted by the imminent publication of the relevant volume of the *Flora of Australia*, resulting in the recognition of further species. Five have so far been published (Bean 2011; Bean 2013). This paper formally describes a further species that was recognised by the first author as being distinct from *P. dentex* R.Br. ex Benth. nearly 20 years ago.

Materials and methods

This paper is based on a study of herbarium specimens at DNA, NT, AD, MEL and NSW (including an isotype of *Pluchea dentex*) and examination of *Pluchea* populations in the field. Measurements of capitula and florets were made from fresh material, spirit material or rehydrated herbarium specimens, while leaves, bracts and achenes were measured from dried specimens. Capitulum length was measured from the base of the involucre to the apex of the anthers of the disc florets. Capitulum width was measured at the widest point of the involucre. Peduncle length was measured from the base of a mature capitulum (that had shed achenes) down to the next branch. Data relating to achenes are based on those that have developed from the outer filiform florets.

Abstract

Pluchea macdannellensis Albr. & A.R. Bean is described and illustrated, with notes on distribution, habitat and relationships with other species of *Pluchea*.

Key words: *Pluchea macdonnellensis, Pluchea dentex,* Australian flora, Northern Territory flora, South Australian flora

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Taxonomy

Pluchea macdonnellensis Albr. & A.R. Bean **sp. nov.**

Pluchea sp. Ormiston (H.D.V. Prendegast 66) *sensu* Albrecht, D.E., Duguid, A.W., Coulson, H., Harris, M.G. & Latz, P.K. (2007)

Type: **NORTHERN TERRITORY.** Ormiston Pound, 5 km due W of Mt Giles, 6.vi.2010, *D.E. Albrecht 13465* (holo: DNA, iso: BRI, CANB, MEL, AD).

Perennial *herb or subshrub* up to 35 cm high, aromatic. *Stems* green, terete, erect to spreading, moderately densely covered with shortly stipitate glands mostly ≤ 0.1 mm long, and sometimes with eglandular hairs to 0.5 mm long in leaf axils. *Leaves* sessile, linear to narrowly oblanceolate or narrowly elliptic, not decurrent, (4–)10–40(–55) mm long, 0.4–3(–4) mm wide, those towards the base of stems tending to be larger, margins entire or rarely with a few small teeth on one or both margins in the distal half, sparsely to moderately densely covered with shortly stipitate or sessile glands mostly ≤ 0.1 mm long or rarely to 0.3 mm long, sometimes with stouter outgrowths to 0.5 mm with or without a terminal gland on the leaf undersurface, base attenuate, apex subacute to acute, sometimes weakly apiculate, margins plain or recurved, midvein commonly slightly raised on abaxial side. *Capitula* arranged cymosely, sometimes with two new capitula-bearing branches arising from below an older capitulum, campanulate, heterogamous, 6–8 mm long, 4–5(–6) mm wide; peduncles 30–100 mm long, hollow below capitulum; peduncular bracts reducing in size towards capitulum, linear to narrowly oblanceolate, entire, densely covered with shortly stipitate or sessile glands. *Involucral bracts* in several rows; *outer bracts* 3–4 mm long, 0.5–0.7 mm wide, herbaceous with scarious margins, moderately densely covered with shortly stipitate or sessile glands, narrowly elliptic to linear-lanceolate or linear-oblanceolate, apex acute to acuminate, distal margins slightly fimbriate and sometimes with stipitate glands; *inner bracts* 4.5–6 mm long, 0.15–0.5(–0.6) mm wide, scarious except for narrow midvein, glabrous, linear-lanceolate, apex acute, margins entire or slightly fimbriate distally. *Receptacle* epaleate, slightly convex to flat, verrucose, 3–4.5 mm diameter. *Outer florets* c. 200, filiform, female, arching outward distally; corolla 3.8–4.5 mm long, pale pink; lobes 3–4, triangular, 0.2–0.3 mm long, often with sessile glands on exterior; style distinctly bifid, exserted, glabrous; pappus 3–3.8 mm long, pappus bristles 8–11, of somewhat unequal length, very indistinctly barbellate. *Disc florets* (30–)35–100, tubular, appearing bisexual but functionally male; corolla 4–5 mm long, deep pink; lobes 5, triangular, 0.5–0.7 mm long, with sessile glands on exterior; anthers c. 2 mm long, including basal appendages 0.1–0.2 mm long, apical appendages obtuse, filament collar cells swollen; style shortly bifid with appressed lobes, exserted by 0.7–2 mm, with subacute sweeping hairs; pappus 3.5–4 mm long, pappus bristles 7–12(–14), of somewhat unequal length, indistinctly barbellate. *Achenes* cylindrical to narrowly ellipsoid or narrowly obovoid, 0.65–1 mm long, with scattered appressed twin hairs, carpopodium small and ring-shaped. Fig. 1

Selected specimens examined: **NORTHERN TERRITORY.** Hugh River, c. 2 km downstream of Hugh Gorge, 19.iv.1994, *D.E. Albrecht 5856* (NT, DNA); 2 km S of Cumming Yards, West MacDonnell Ranges, 26.viii.2003, *D.E. Albrecht 10560* (NT); Mt Larrie Range, 15 km W of Papunya, 29.ix.2004, *D.E. Albrecht 11586 and P.K. Lotz* (NT); c. 13 km E of Mt Giles, West MacDonnells NP, 16.v.2006, *D.E. Albrecht 11986* (NT); Ormiston Pound, in dry creek running adjacent to walking track near central boulder mound, 7.x.1997, *D. Bishop 126* (NSW); Track between Mt Leibig Outstation and Talipata Gorge, 8.vii.1988, *M.G. Corrick 10344* (MEL, NT); Central Australia (no precise locality), *no date*, Horn Expedition (NSW); Ormiston Pound walking trail on Ormiston Creek, 15.iii.1997, *P. Horsfall 280 and N. Brolsmo* (NT); Ormiston Gorge Reserve, 11.xi.1976, *P.K. Lotz s.n.* (NT); Simpsons Gap National Park, south of Rocky Gap, 5.xi.1980, *P.K. Lotz 8521* (NT); Talipata Springs, 11.x.2003, *P.K. Lotz 19504* (NT); 55 km W of Haast Bluff Settlement, 12.viii.2006, *P.K. Lotz 22044* (NT, DNA); 4 km NW of Jay Creek, 38 km WSW of Alice Springs, 17.ii.2010, *P.K. Lotz 25100* (AD, DNA, MEL, NT); Ormiston Pound, 25.viii1989, *H.D.V. Prendegost 66* (NT); Todd River Recreation Lake area, 1.ii.1980, *A.S. Weston 5* (NT, PERTH); Roadside near Stanley Chasm, 15.v.1975, *L.D. Williams 6597* (AD). **SOUTH AUSTRALIA.** North West, Tomkinson Range, iv.2001, *R. Botes 58744* (AD).

Distribution and habitat: With the exception of one record, all collections have been made within or on the edge of the MacDonnell Ranges bioregion of arid Northern Territory (Fig. 2). A single collection was made in the Tomkinson Range (far north-western South Australia) in 2001 following exceptional rains; however, there is a remote possibility that the locality is incorrect. The occurrence of *Pluchea macdonnellensis*

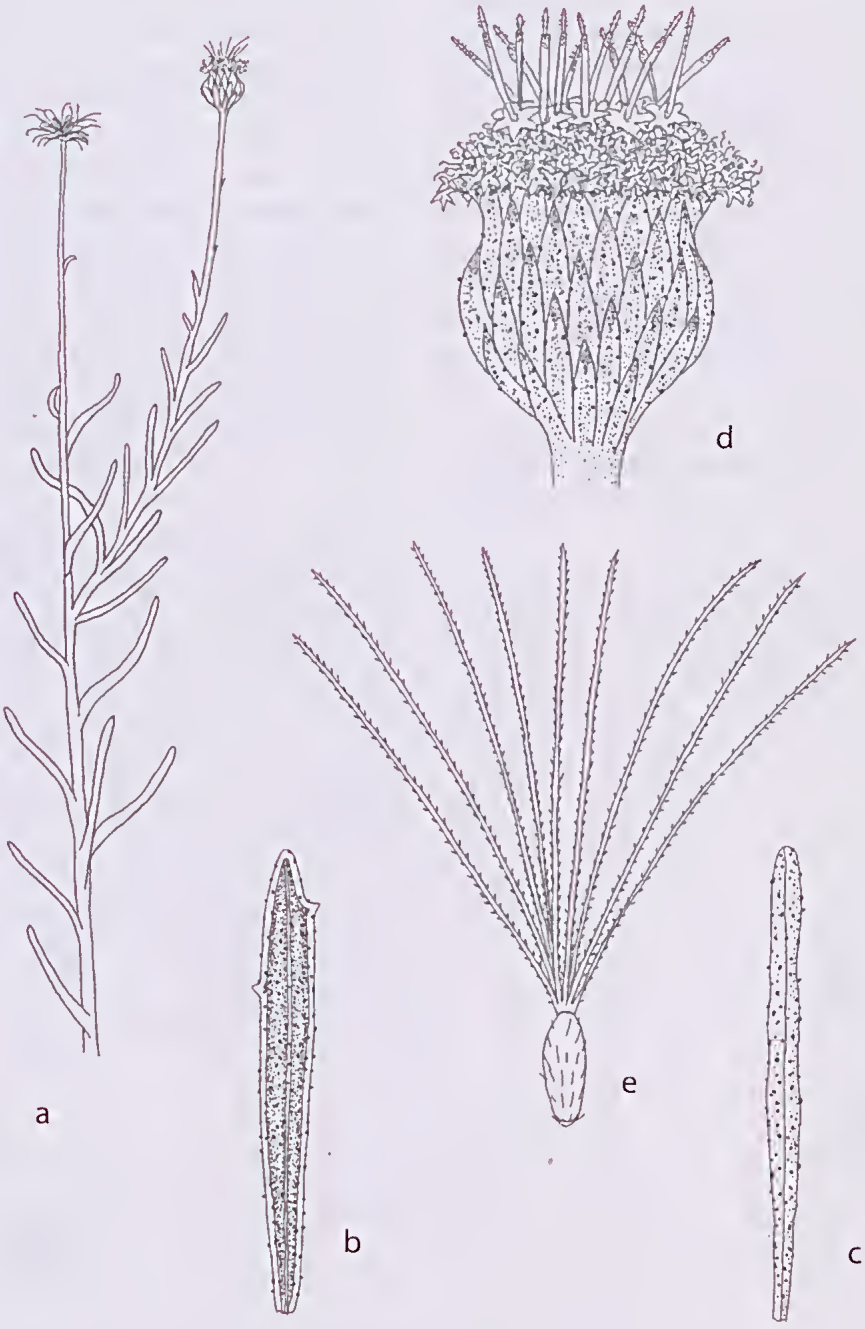

Figure 1. *Pluchea macdonnellensis*: **a.** middle to upper portion of flowering plant, ×1; **b.** lower leaf showing rare marginal teeth, ×3; **c.** typical leaf, ×3; **d.** flowering capitulum, note that number of emergent styles visible is not indicative of the number of disc florets, ×5; **e.** achene of filiform female floret, ×17. A–E drawn from cultivated material originating from *Horsfall 280*.

in north-western South Australia is intriguing given that the species has not been found in adjacent areas of far south-western Northern Territory despite extensive searches.

The taxon is restricted to gravelly or rocky (rarely sandy) creek beds and small drainage lines, and the gravelly or rocky slopes of foothills. Most populations occur on gneiss, schist or granite geology, rarely extending onto nearby quartzite. Commonly associated species include *Eucalyptus camaldulensis* subsp. *arida* Brooker & M.W.McDonald, *Melaleuca glomerata* F.Mueller, *Gossypium sturtianum* J.H.Willis, *Themeda triandra* Forssk. and *Triodia brizoides* N.T.Burb. *Pluchea macdonnellensis* commonly occurs with *P. rubelliflora* (F.Muell.) B.L.Rob. and occasionally with *P. ferdinandi-muelleri* or *P. dunlopii*.

Phenology: Flowering specimens have been collected most months of the year and, like many other herbaceous arid zone species, flowering is linked to rainfall events.

Notes: *Pluchea macdonnellensis* is closely allied to the variable *Pluchea dentex*. The two taxa are readily separated on leaf morphology. In *P. dentex* the leaf margins are regularly toothed or pinnatifid on most or all leaves of a plant, whilst in *P. macdonnellensis* all leaves are entire or a few lower leaves may have few marginal teeth. Additional overlapping characters may be useful in distinguishing the two taxa including the number of disc florets within each head ((30–)35–100 in *P. macdonnellensis*, cf. 9–40 in *P. dentex*), the length of the shortest peduncle (30–100 mm long in *P. macdonnellensis*, cf. 3–34 mm long in *P. dentex*) and the presence of non-glandular hairs on the corolla lobes of disc florets (present or absent in *P. dentex*, cf. absent in *P. macdonnellensis*). The leaves of *Pluchea macdonnellensis* and *P. dentex* have somewhat different odours but as yet no phytochemical analyses have been carried out.

Pluchea dentex is a widely distributed taxon in arid Northern Territory occurring along sandy, gravelly or rocky drainage lines across a range of geologies. *Pluchea macdonnellensis* on the other hand occurs on a narrower range of geologies and appears equally adapted to gravelly or rocky slopes of foothills as it does to drainage lines. Although *Pluchea macdonnellensis* and *P. dentex* occur within the same region they have not been seen growing together.

Specimens of this taxon do not appear to have been seen by Hunger (1997) when she was revising the

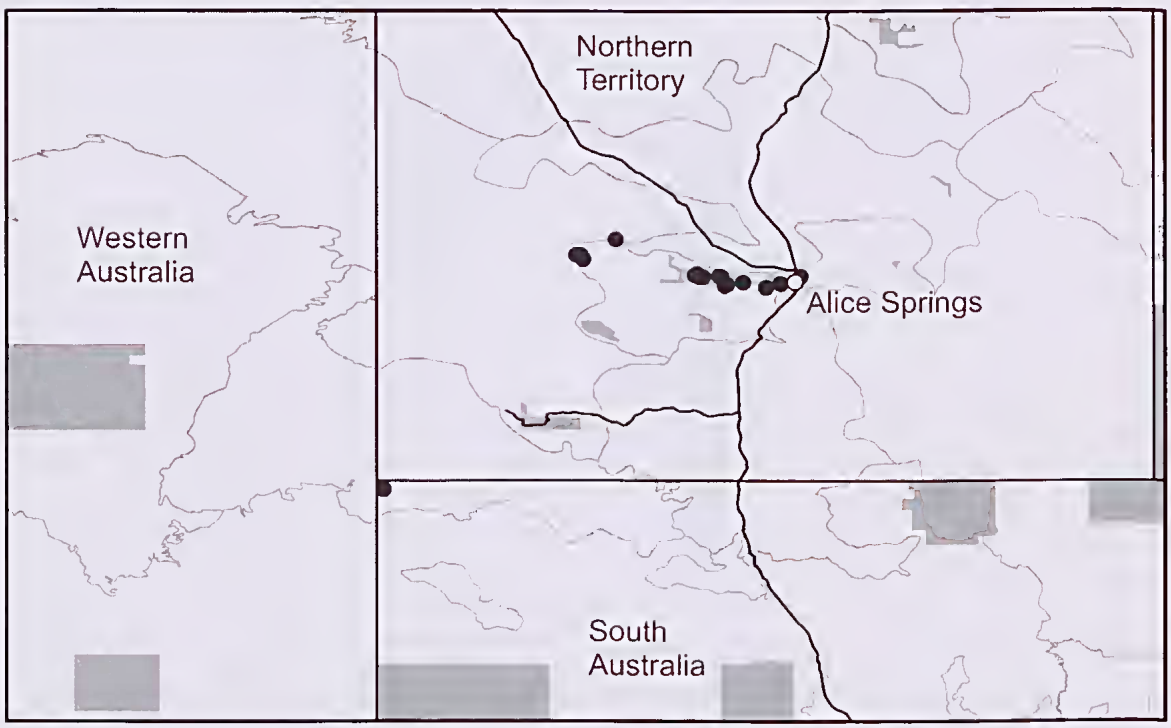

Figure 2. Distribution of *Pluchea macdonnellensis* (closed circle). Bioregional boundaries shown by finer grey linework.

Australian members of *Pluchea*. Using her treatment, *Pluchea macdonnellensis* will key to *P. dentex*.

Conservation status: This taxon is currently listed as DD (data deficient) under the 2010 review of schedule 2 of the *Territory Parks and Wildlife Conservation Act 2000*. Further survey work in north-western South Australia would help to resolve the uncertainty concerning the occurrence and conservation status of the species in South Australia.

Etymology: The specific epithet refers to the geographic distribution of the species, which is virtually confined to the MacDonnell Ranges bioregion.

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